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ABSTRACT

A survey was undertaken to examine the use of microcomputers in early childhood special education (ECSE) programs in New York State. Questionnaires attempt to elicit data concerning the availability of microcomputers in ECSE programs, the funding sources, and the ages, functioning levels, and handicapping conditions of the children who use them and the ways in which they are used. Fifty-two questionnaires were completed by directors of ECSE programs enrolling children from birth to age 5. Profiles of three groups of respondents are described: (1) directors of programs which provide microcomputers for their students; (2) directors of facilities in the process of incorporating microcomputers into their programs or with plans to do so in the future; and (3) respondents with no intention to introduce microcomputers into their programs in the foreseeable future. Findings revealed that more than half the respondents were either using microcomputers or had plans to do so. Increased usage was expected even though the directors expressed concern about lack of appropriate software and demands on teacher time. Findings pointed to the need to develop a communication system to share information on microcomputer curricula and teaching strategies. (CL)

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The Use of Microcomputers in New York State Early Childhood Special Education Programs

Microcomputers have rapidly become part of the educational system from elementary school through the secondary level (Hassett, 1984). This growing enthusiasm for computer technology has led to an increase in their application in preschool special education programs. A review of recent journals and presentations at national special education and early childhood conferences finds that microcomputers are being recommended and used increasingly for young children with many types of handicapping conditions. (Behrmann, 1984; Fleenor, 1984; Perry, 1984; Trachtman, 1984.)

This trend poses many questions for the early childhood special education (ECSE) teacher and teacher educator concerning the effect on the child and the training of teachers. What types of microcomputer activities should be used with this age group? What are the benefits? What are the negative consequences? What factors should be considered to determine if, when, and how microcomputers should be used by young children with handicapping conditions? How does the use of computer technology in ECSE classes effect preservice and inservice teacher training? These and other questions must be answered before ECSE programs, spurred by pressures from parents and industry, rush to adopt the new technology.

Description of Survey

The first of a two stage study to examine the use of microcomputers in ECSE programs in New York State was undertaken in the Fall of 1984. Questionnaires were sent to the directors of 92 ECSE programs which enroll children from birth to five years who have varying types and severity of handicapping conditions. The questionnaire attempts to elicit data concerning the availability of microcomputers in ECSE programs, the funding sources, and the ages, functioning levels, and handicapping conditions of the children who use them and the ways in which

they are used. The questionnaire also asks for information about sources of staff training. ~~A copy of the questionnaire is appended~~.

Results

Fifty-two of the questionnaires were returned (56.3%). Three groups of respondents can be identified: Group I- programs which provide microcomputers for their students; Group II- facilities which are in the process of incorporating microcomputers into their programs or have plans to do so in the future; and Group III, respondents who have no intention to introduce microcomputers into their educational programs in the forseeable future. Group I consists of twelve programs (23.1%) Group II, nineteen (36.5%) and Group III, twenty-one (40.4%). All three groups provide programs for children with varying types and degrees of handicaps.*

Table I
Program Size

	4-24	25-49	50-74	75-99	100-124	125-149	150-174	175-200	more than 200
Group I	0	0	4	3	1	0	1	1	1
Group II	0	3	1	3	2	2	1	1	
Group III	9	1	5	3					2**

**Children with mildly handicapping conditions are in mainstreamed Pre-K Programs

The programs from whom responses were received vary in size from 4 to more than 200 pupils. (See Table I) The larger programs are in several locations in a school district or county. Two programs are home-based, and work with children and

*The handicapping conditions listed by the respondents: language impaired, mentally retarded, autistic, hearing impaired, blind, emotionally disturbed, multiply handicapped, physically handicapped and learning disabled.

parents on an individual basis. The providers are non-profit agencies, Boards of Cooperative Educational Services or private groups.

Group I

Of the twelve programs which provide microcomputers for students' usage, nine have Apple IIe. The Pet Commodore and an Atari are used in the other two settings. Four of the larger programs have more than one computer available for student use. Other programs, though as large as these, have only one microcomputer available.

All programs in Group I reported that access to the computer is determined by age and developmental level. The criteria used to determine the age or developmental level which is appropriate were not noted by any of the respondents. The number of times each student uses a computer and the length of each session is decided on an individual basis. The sessions vary in length from ten to thirty minutes. The frequency of use varies from once a week to twice a day. With the exception of two programs where children can use the computers by themselves, all others have them work with an adult or peer, but never alone.

To accommodate the needs of specific handicapping conditions, peripheral equipment and hardware and software are often required. The most frequently used peripherals are the touch pad, graphic tablet, and voice. Reported adaptations include an alternative keyboard, modified keyboard, special switches, and special software. Most adaptations are developed by specialists and consultants hired by the sponsoring agency. One program said the adaptations were made by the manufacturer, while two others reported that adaptations are teacher-made.

Most of the computers were obtained through federal research grants or through state grants for special, non-research, projects. Some were obtained as gifts. Only two programs had planned for the purchase of computers in their regular budgets.

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Staff training was provided in several ways. Inservice courses were used to train the education staff at all the programs. The manufacturer was reported to have provided additional training at two ECSE centers. In addition to more formal training, several sites reported using the microcomputer manual, trial and error, or a software program which came with the microcomputer. One center noted that a core of teachers was trained who then trained others at the facility.

All the users reported that the computer was a valuable tool for their population. Their comments includes such statements as: "It helped increase vocabulary," "Attention span increased." It enabled them to focus attention." "Its use fostered cooperation." "It's motivating." "It's another alternative." "It eliminates the need to write for those who are unable." "It aided communication." "It's best for those with physical limitations."

With the exception of one respondent, drawbacks were identified by all users. Most noted that there is a lack of appropriate software for this age group. Several said that too much teacher time is required. Two reported maintenance and housing problems.

Group II

Nineteen of these respondents said they planned to use computers in their settings in the future. Their reasons varied: "Our agency bought one for us." "It will help our students make the transition to other programs or their home districts." "I think it will be motivating." "..for individualizing." "..to enhance our program."

Four of the directors in Group II said they are in the process of setting up their programs. Three have obtained Apple IIe. All four are conducting inservice training of staff, selecting children, defining goals. They, too, expressed concern about the lack of software for their age group.

Group III

The profile of the twenty-one programs which have no plans to incorporate microcomputers differs slightly from the other two groups. Ten of these have 25 or fewer children. Two of these small programs are home-based. Most reported having insufficient funds to purchase computers and provide teacher training as a primary reason for not using this technology. Three directors said they are not aware of evidence that incorporating computers into their programs will benefit the children.

Discussion and Implications for Further Research

Though the number of respondents is small, the impact of microcomputer in ECSE programs in New York State can be seen in the responses to the questionnaire. The results indicate that there will be an increase in the use of this technology in such settings. More than half the respondents, 59.6%, are either using microcomputers, 23.1%, or have plans to do so, 36.5%. The available peripherals and hardware/software adaptations make it possible to meet the needs of children with many types and degrees of handicaps. Increased usage is expected even though the directors expressed concern about the lack of appropriate software and the demands on teacher time. Several respondents said that the adoption of microcomputers has been encouraged because it is believed it will facilitate the students' transition from preschool settings into district programs.

Many program directors requested bibliographies of related research so that they could learn what is happening elsewhere in the state and country. There is a need to develop a communication system for the sharing of information on microcomputer curriculum and teaching strategies.

The second stage of this study will be a follow-up of the respondents in Groups I and II to find out how age and developmental criteria (question 13) are determined in each setting. Evaluation designs and measures of the effectiveness of microcomputer usage will be requested from each program.

Further study is needed to determine the competencies needed by ECSE teachers and how this training should be provided. In discussing general teacher training needs, Cohen and Schwartz (1983) recommend that such training should be applications oriented and not include programming since few teachers have the time to produce their own instructional materials. It appears that in order to make computers available to students with differing handicaps ECSE teachers need additional competencies such as: learning to interact with specialists in programming and engineering and developing the ability to make their own adaptations of hardware and software for specific children with specific needs.

Research should be designed to evaluate the effectiveness of computer instruction on the social/emotional and cognitive development of young children with different types and degrees of handicapping conditions. Negative and positive effects need to be identified.

The research directions mentioned above are only a few ways that the efficacy of microcomputers in ECSE programs could be examined. When program directors are given evidence that such usage is effective, it is hoped that fiscal restraints will not limit accessibility to those who will benefit.

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